

Claims

1. An earthquake prediction method wherein:  
telluric current induction fields and telluric currents are  
estimated based on magnetic fields that are observed at each point within an  
observation area; and

5 change over time of the telluric currents and a state of telluric  
currents within said observation area are analyzed to estimate a seismofocal  
zone, time of occurrence, and seismic intensity of a seismic event.

2. An earthquake prediction method according to claim 1,  
wherein:

a magnetic field noise component at observation points is  
eliminated from observed magnetic fields;

5 an amount of divergence of a direction of a magnetic fields  
from a direction of true north at observation points from which said magnetic  
field noise component has been eliminated is found; and

said telluric current induction fields are estimated based on  
vector differences between observed magnetic fields from which said  
10 magnetic field noise component has been eliminated and a geomagnetic  
vector that has been corrected to true north.

3. An earthquake prediction method according to claim 1 or 2,  
wherein:

said estimated telluric current induction fields are plotted on a  
map; and

5           said telluric currents are estimated by both joining points on  
the map at which geomagnetic abnormalities are recognized and applying  
right-handed screw rule.

4.       An earthquake prediction method according to claim 1 or 2 or  
3, wherein:

                an area in which said estimated telluric currents are  
concentrated is estimated to be a seismofocal zone.

5.       An earthquake prediction method according to claim 1 or 2,  
wherein:

                past data of telluric current induction field intensities at specific  
observation points are gathered and a telluric current induction field intensity

5       change pattern that indicates change over time is generated; and

                this pattern is then compared and collated with past telluric  
current induction field intensity change patterns that have been stored to  
estimate said time of occurrence and seismic intensity of a seismic event.

6.       An earthquake prediction system comprising:

                mobile units such as vehicles or ships, each unit carrying:

                a magnetic force line sensor for supplying as output magnetic  
field data that indicate a direction and intensity of lines of magnetic force;

5       a GPS position detector for receiving radio waves of a GPS

                satellite and supplying as output position data that indicate position; and

                a data transmitter for transmitting said data; and

an earthquake prediction center for collecting said data of  
various points that are transmitted by said mobile units that travel within an  
10 observation area and then implementing earthquake prediction.

7. An earthquake prediction system according to claim 6, said  
earthquake prediction center comprising:
  - a data receiver for receiving data that have been transmitted  
from said mobile units by way of a communication network and antenna;
  - 5 a data storage unit for retaining and storing various data such  
as map data and data that have been received by said data receiver;
  - a telluric current induction field estimation unit for estimating  
telluric current induction fields based on map data and data that have been  
retained and stored in said data storage unit;
  - 10 telluric current estimation unit for estimating telluric currents  
based on said telluric current induction fields that have been estimated;
  - a telluric current induction field intensity change pattern  
generation unit for accumulating transitions over time of said telluric current  
induction field intensities and then generating change patterns; and
  - 15 an earthquake prediction unit for analyzing said telluric  
currents that have been estimated and said change patterns of said telluric  
current induction field intensities to estimate a seismofocal zone, seismic  
intensity, and time of occurrence of a seismic event.

8. An earthquake prediction system according to claim 6, wherein,  
when said mobile unit is provided with a car navigation system, position data

of said car navigation system is used instead of data from said GPS position detector.

9. An earthquake prediction system according to claim 6,  
wherein:

said magnetic force line sensor and communication equipment  
are installed in preselected existing fixed structures within the observation

5 area; and

said communication equipment transmits magnetic field data  
output of said magnetic force line sensor and information indicating  
installation positions to said earthquake prediction center by way of an  
existing communication network.

10. An earthquake prediction system according to claim 6,  
wherein:

said magnetic force line sensor and GPS position detector are  
incorporated in a mobile telephone or a mobile unit; and

5 said mobile telephone uses its own communication capabilities  
to transmit observation data to said earthquake prediction center.

11. An earthquake prediction system according to claim 9, wherein  
an acceleration sensor is provided, and said magnetic field data are  
transmitted when said acceleration sensor detects earthquake motion.

12. An earthquake prediction system according to claim 6 or 10,  
wherein an acceleration sensor is provided and said magnetic field data are

transmitted when said acceleration sensor detects a stationary state of at least a fixed time interval.

5